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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional):

4015-5133/P17443-US1

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Date: February 22, 2008

Signature:



Typed or printed name: KATHLEEN KOPPEN

Application Number:

10/720,492

Filed:

November 24, 2003

First Named Inventor:

Fulghum

Art Unit:

2611

Examiner:

MR. KEVIN BURD

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor

☐ assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.

(Form PTO/SB/96)

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Registration Number if acting under 37 CFR 1.34

February 22, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ form(s) is/are submitted.

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 509. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Fulghum et al.

Serial No.: **10/720,492**
Filed: **24 November 2003**

For: **Method and Apparatus for DS-CDMA
Interference Suppression Using Code-
Specific Combining**

Docket No: **4015-5133**

PATENT PENDING

Examiner: Mr. Kevin M. Burd

Group Art Unit: 2611

Confirmation No.: 4554

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CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

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22 February 2008

Date

Kathleen Karpman

This correspondence is being:

- ☐ electronically submitted via EFS-Web

ARGUMENTS FOR PRE-APPEAL BRIEF REQUEST FOR REVIEW

In response to the Final Office Action mailed 23 November 2007 and the Advisory Action mailed 29 January 2008, the applicants submit the following remarks in support of the Pre-Appeal Brief being filed concurrently with a Notice of Appeal. If the accompanying payment does not cover all fees, please charge any remaining fees to Deposit Account No. 18-1167.

Claims 1, 2, 4 – 6, 8, 9, 11 – 13, 15 – 16, and 19 – 89 are currently pending, of which claims 1, 5, 8, 12, 16, 21, 24, 28, 32, 49, 67, 77, and 83 are independent. Independent claims 1, 5, 12, 16, 21, 28, 32, 49, 67, 77, and 83 stand finally rejected under §102 as anticipated by Papisakellariou. Independent claims 8 and 24 stand finally rejected under §103 as obvious over Papisakellariou in view of Eberhardt. As explained in further detail below, the cited

references are both structurally and functionally different from the claimed invention. As such, the rejections fail.

The claimed invention reduces intersymbol interference in a symbol of interest by processing unknown symbols received over multiple paths of a multi-path channel. The independent claims despread the unknown symbols over at least one multi-path channel, determine cross-correlations between the different symbols based on code cross-correlations between spreading codes for the different symbols, and combine the despread symbols from different symbol periods based on the cross-correlations to reduce the interference (e.g., using weighting factors determined based on the code cross-correlations). It is important to note that the claimed invention uses the code cross-correlation based combining to reduce the interference. Further, it is important to note that the claimed invention does not require knowledge of the information symbol values for the interfering symbols. In fact, the claimed invention explicitly relies on unknown interfering symbols.

Papasakellariou describes an interference suppression method that performs subtractive interference cancellation after despreading but before RAKE combining (see ¶[0020]). In particular, Papasakellariou describes determining the interfering signals, multiplying code cross-correlations by each interfering signal's complex amplitude and information symbol, and subtracting the result from the output of the despreader associated with the desired signal to cancel interference (See ¶ [0009]). Thus, Papasakellariou relies on known interfering symbols that are specifically determined for the interference cancellation process. Further, while Papasakellariou uses code cross-correlations as part of the interference cancellation process, Papasakellariou does not use the code cross-correlations to determine weighting factors for a multi-path combining process, such as a RAKE combining process.

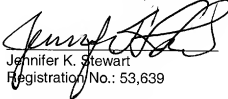
Each independent claim explicitly processes unknown interfering symbols to reduce interference. Further, each independent claim performs interference cancellation on the

despread unknown symbols as part of a code cross-correlation based combining process (e.g., a RAKE combining process). Independent claims 1, 8, 21, 24, 28, 32, and 67 explicitly require the code cross-correlation based combining process to be part of a RAKE combining process. Because the examiner relies on Papasakellariou for these teachings in both the §102 and §103 rejections, and because nothing in Papasakellariou teaches or suggests these limitations, Papasakellariou is functionally and structurally different from the independent claims.

In light of these remarks, the applicants respectfully request that the Panel withdraw all pending §102 and §103 rejections.

Respectfully submitted,

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